Hand, Foot, and Mouth Disease (HFMD): An Overview

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Abstract

Background: Hand, Foot, and Mouth Disease (HFMD) is a contagious viral infection of mostly young children. The disease is typically associated with lesions on the hands, feet, and the oral cavity with some cases characterized by lesions on the buttocks and genitals. In daycare centers, kindergartens, and schools, outbreak is common, and in these places, children have close contact with each other, thus promoting transmission. The causative agents are most frequently implicated in Enterovirus A71, Coxsackievirus A16 and Coxsackievirus A6.

Case Presentation: We present the case of a 5-year-old female child living in an urban area in Central India who presented with low-grades fever of 2 days duration, painful oral ulcers and a vesicular eruption on palms and soles along with buttocks. Physical examination showed the presence of several vesicular lesions in the mouth and the extremities. Investigations in the laboratory were not remarkable, and throat-swab RT-PCR showed Coxsackievirus A16. The child was managed conservatively using antipyretics, the use of oral analgesics, hydration, and counseling of parent. The symptoms subsided in 5 days and at 10 days, the symptoms were fully resolved without complications.

Conclusion: HFMD is a self-limiting disease that is however very contagious to pediatric populations. A timely diagnosis, a constructive approach on the management and prevention education, are essential to ensure a successful control of the disease and prevent the unnecessary measures.

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Introduction

Hand, Foot, and Mouth Disease (HFMD) is an acute viral disease, which is mainly characterized by the involvement of hands, feet, and mouth, although it can also include the buttocks and the genital area.[1] The disease has a global distribution, is common in paediatric and young adult demographics, and is commonly spread through localised epidemics.[2] Children under the age of 5 years, especially infants, are particularly at risk, mainly due to intimate contact and spread in collective environments, especially day-care centers, kindergartens, schools, and family environment.[3] HFMD is most commonly caused by Enterovirus A71, Coxsackievirus A16 and Coxsackievirus A6 virus. The disease is usually self-limiting, but its high infectivity and the ability to spread across the community require clinical awareness and early recognition.[1,2,4]

Case Presentation

Patient background

The patient, a five-year-old child living in an urban community who was referred to the outpatient department brought by her mother as the primary informant. The immunization status of the child was said to be in compliance with the national immunization schedule. She was apparently alright 3 days back when she developed fever, insidious in onset, associated with decreased appetite. The next day, her mother noticed multiple, small lesions present over knees, elbows and in the oral cavity. The lesions are painful in the oral cavity on swallowing. No history of cough, breathlessness, vomiting, loose stools, or seizures. The child had not traveled in the recent past, and had no known allergies. Also, the family history did not show atopy, asthma/immunodeficiency. There was no significant past medical, surgical, or family history of similar illnesses.

Clinical presentation

Detailed assessment of the patient showed that she was conscious, agitated, and consolable. Buccal temperature was 100°F (37.8°C), she complained of malaise, anorexia, and increased drooling of saliva. On dermatological examination, multiple, erythematous, vesicular rash on palms, soles, and buttocks are noted. Lesions are discrete, 2–5 mm, some with central vesiculation. Multiple small vesicles and shallow ulcers on tongue, buccal mucosa, and soft palate, which started as small red spots (macule) followed by painful vesicles (herpangina). Respiratory, cardiovascular, abdominal, and CNS examinations are within normal limits.
Throat swab RT-PCR is positive for Coxsackievirus A16.

Management

The patient was treated on an outpatient basis on supportive care:

- Oral paracetamol (15 mg/kg per day) fever and oral discomfort.
- Topical oral analgesic gel to relieve symptoms.
- Fluid intake should be sufficient and with the help of cold drinks and a soft diet.
- Education of the mother about infection control, hand hygiene, and short-term school absence until lesions crusted.
- Information on warning signs (neurological or respiratory symptoms) that would require prompt medical attention.

Follow up

Child was clinically stable on supportive care. By the 3 rd day, fever had subsided. There was progressive oral intake. By the 5th day skin lesions formed a crust. With no other intervention, most of the cases spontaneously resolve in 7-10 days. Aseptic meningitis, encephalitis, and myocarditis are reported as rare complications in the limited literature.

Differential diagnosis

If the oral mucosa is involved, the differential diagnosis includes the following:

- Primary herpangina
- An orolabial herpes simplex infection
- Aphthous stomatitis.

If there is widespread cutaneous involvement, differential diagnosis includes:

- Eczema herpeticum (Kaposi varicelliform eruption)
- Varicella zoster infection
- A disseminated herpes zoster infection
- Erythema multiforme major.

Other differential diagnosis include:

- Papular urticaria
- Kawasaki disease
- Toxic epidermal necrolysis (TEN)
- Viral pharyngitis. [3]

Discussion

HFMD is a common viral pathology among paediatric populations, especially in community and schools. Fecal-oral, respiratory and direct contact have been reported as modes of viral transmission.[5] Classical triad of fever, painful oral vesicles and vesicular rash of the extremities allows a clinical diagnosis. [1,6] There is little indication to conduct laboratory investigations, but they can be used to prove viral etiology in outbreak circumstances.[6,7] The management is mainly supportive and focuses on fluid maintenance and symptomatic treatment.[1,8] Uncommon complications can be aseptic meningitis, encephalitis or, in the case of Enterovirus 71, pulmonary edema.[4] Control of the outbreak depends on the use of public-health measures, namely, enhanced hand hygiene, disinfection of surfaces, and temporary school exclusion.[3]

This case reflects the typical clinical presentation of HFMD in a preschool-aged child and confirms the importance of prompt diagnosis by primary-care physicians. Clinical suspicion in India where viral exanthems are commonly misdiagnosed as bacterial or allergic diseases with a history of outbreaks help in effectual management and can prevent unnecessary antibiotic prescription. The case in its urban school setting shows vulnerability to the communities, and this is why parents and teachers need to be educated through awareness campaigns.

Conclusion

HFMD (hand, foot, and mouth disease) is a self-limiting, highly contagious disease in early childhood. Early identification, supportive treatment, and preventive education are essential in reducing the burden of disease and halting an outbreak. The current report highlights the essential role played by primary healthcare providers to enable early diagnosis and reassure caregivers.

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